Utah Cost of Crime

Sex Offender Treatment (Juveniles): Technical Report

December 2012

THE UNIVERSITY OF UTAH

Utah Criminal Justice Center

COLLEGE OF SOCIAL WORK
COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES
UTAH COMMISSION ON CRIMINAL AND JUVENILE JUSTICE
S.J. QUINNEY COLLEGE OF LAW

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Christian M. Sarver, M.S.W.
Jennifer K. Molloy, M.S.W.
Robert P. Butters, Ph.D.

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Utah Criminal Justice Center, University of Utah

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In the United States (U.S.), more than 13,000 juvenile sex offenders participate in court-mandated treatment programs annually (McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2009). Juvenile sex offenders are required to attend treatment for a range of offenses, including lewdness, exhibitionism, sexual assault, sexual abuse of a child, sodomy, and rape. Treatment for juvenile sex offenders commonly falls into four broad categories: psycho-social education; drug therapies, either for the purposes of castration or psychological treatment; cognitive-behavioral (CBT) and relapse prevention therapies; and individual and family counseling (Walker, McGovern, Poey, & Otis, 2004). The majority of programs rely on cognitive behavioral approaches grounded in social learning theories (Center for Sex Offender Management (CSOM), 2006) and last approximately 20 months (Daly, 2008). More than 90% of juvenile programs provide individual therapy; the majority of programs also provide group and family therapy. The most common treatment targets are victim empathy, accepting responsibility for the offense, social skills training, and development of family support networks (McGrath et al., 2009).

Increasingly, criminal justice interventions are structured according to the principles of effective correctional services, which matches offenders to treatment based on their risk-level, criminogenic needs, and learning styles (Andrews & Bonta, 2006; Andrews et al., 2001; Bonta, 2001). Hanson's (2009) meta-analysis compared recidivism outcomes between sex offender programs that adhered to the principles of effective treatment (risk-needs-responsivity (RNR)) to those that did not and found that the former were associated with larger reductions in recidivism. This latter finding may shed light on the inconsistencies in sex offender treatment research. According to the RNR model, treatment targets should have an empirically-demonstrated relationship to recidivism; however, two of the three most common treatment targets in juvenile sex offender treatment programs (victim empathy and denial) are not associated with recidivism (CSOM, 2006). In 2009, McGrath et al. found that 13% of community-based juvenile sex offender programs and 20% of residential programs identified the RNR model as one of the "top three theories that best describes the[ir] program."

Prior Research

Two early meta-analyses found no effect on recidivism outcomes for any kind of sex offender treatment (Furby, Weinrott, & Black, 1989; U. S. General Accounting Office (USGAO), 1996). At the time of their study, Furby et al. (1989) concluded that meta-analysis was impossible because of the dearth of high quality research. Subsequent reviews, which included both adult and juvenile samples and heterogeneous interventions, showed a positive effect of treatment on recidivism (Alexander, 1999; Hall, 1995; Hanson et al., 2002; Polizzi et al., 1999). Many of these analyses, however, have been critiqued on the basis of methodological weakness within the primary studies (Losel, 2005). These limitations stem, in part, from strong public concern over sex crimes that has led to most convicted offenders being sentenced to some form of treatment. Consequently, researchers struggle to find a sample of untreated offenders to use as a comparison group. Given low baseline rates of sex offending, particularly for adolescent offenders, treatment effects are difficult to discern if the study follow-up period is less than three years (Daly, 2008). Heterogeneity in study constructs—including treatment targets, offender type, and outcome measures—further complicates interpretation of the effects of treatment.

In a meta-analysis of 23 studies (four of adolescent offenders), Hanson et al. (2009) found that sex offenders who participated in treatment had a sexual recidivism rate that was 43% lower than untreated offenders (11% vs. 19%) and a general recidivism rate that was 34% lower (32% vs. 48%). On the outcome of sexual recidivism, there were no statistically significant differences in the impact of treatment on adult offenders compared to juvenile offenders. On measures of general recidivism, however, treatment had a larger positive effect on juveniles than adults (Hanson et al., 2009). Schmucker and Losel (2008) analyzed 69 studies (seven of adolescent offenders) and found that treated sex offenders had a sexual recidivism rate that was 37% lower (11% vs. 18%) than untreated offenders. Moderator analyses showed no differences in treatment effects based on offender age (Schmucker & Losel, 2008). These findings partially contradict two previous meta-analyses of adolescent sex offenders, both of which found larger treatment effects for juveniles when compared to adults (Reitzell & Carbonell, 2006; Walker et al., 2004).

Meta-analyses of adolescent sex offender treatment generally confirm the effectiveness of CBT interventions for reducing reoffending (Aos et al., 2001; Aos et al., 2006; Walker et al., 2004). Reitzell and Carbonell (2006) found that although CBT was effective, it was not more effective than other interventions such as multisystemic therapies (MST). The authors attribute this discrepancy to differences in coding strategies because they did not include MST as a CBT intervention despite the fact that it includes components of CBT. Their analysis of nine studies of juvenile sex offender treatment found that treated offenders had a sexual recidivism rate that was 11.5% lower (7% vs. 19%) than untreated offenders (Reitzell & Carbonell, 2006).

Methods

Inclusion Criteria

A systematic review was conducted, in accordance with the protocol outlined by PRISMA (Moher, Liberati, Tetzlaff, & Altman, 2009), to identify studies for inclusion in this meta-analysis. The research team identified eligibility criteria for population, intervention, setting, outcome, and methodology (see Methods Report for a further explanation of the search strategy). Given Furby's (1989) failure to identify studies of sufficient quality to conduct a meta-analysis, the researchers restricted the search to studies published between 1987 and 2011. Studies had to meet the following criteria to be eligible:

a) Both the treatment group and the comparison/control group must consist of juvenile offenders (between 12 and 21 years and/or processed within the juvenile justice system) convicted of a sex offense, which could include exhibitionism, sexual assault, sexual abuse, rape, and other offenses classified as sex crimes within local criminal statutes.
b) The study must evaluate a criminal justice intervention. Primary prevention programs and programs serving non-court involved populations were excluded. Interventions could be chemical, educational, therapeutic, or a combination of those strategies.
c) Both secure- and community-based programs were eligible for inclusion.

d) The study must include a post-treatment measure of recidivism—which could be arrest, conviction, return to a secure placement, or delinquency—as an outcome. Recidivism data from official sources was preferred, but studies using only self-report recidivism measures were also eligible. Offenses committed while the offender was in a secure facility were not included; however, recidivism during the time that a participant was on community supervision was included. Non-criminal outcome measures—such as measures of treatment targets—were excluded from this analysis.
e) Both experimental and quasi-experimental studies were eligible for inclusion. Quasi-experimental studies had to use matching or statistical methods to demonstrate equivalence between the intervention and comparison group. Treatment dropouts were not considered an appropriate comparison group; comparison groups consisting of offenders who refused treatment were included only if the authors conducted analyses that demonstrated that the groups were similar. The study must report quantitative results than could be used to calculate an effect size. Given the interest in recidivism, dichotomous data were preferred (e.g. odds ratios). If the study only included continuous measures, effect sizes were calculated and converted into odds ratios (Lipsey & Wilson, 2001) using log odds (see Methods Report).

Retrieving and Screening Studies

The initial literature search identified 3,750 citations, from which researchers pulled 159 studies for further evaluation. Full articles were screened by one researcher, which resulted in eight studies that met inclusion criteria. Twenty-percent (20%) of the full articles (k=30) were double-screened for inclusion; all disagreements were resolved through discussion with the research team. Two studies were identified as follow-up reports on the same population and excluded from the analysis. Outcomes were included for only one timeframe from each study. Because the cost model was based on three to five year recidivism rates, the outcome closest to this timeframe was used in the analysis. In total, six studies were included in the final analysis (see Appendix A).

Extracting Data

The research team developed a detailed code sheet and manual, which included variables related to study quality, program characteristics, participant characteristics, and treatment variables (see Methods Report for a full description of coding variables). One researcher coded all of the included studies and entered the data into an Excel spreadsheet. Ten percent (10%) of included studies were double-coded (k=1), by a second researcher; discrepancies were resolved through discussion with the research team. To assess study quality, the authors used a modified version of The Maryland Scale of Scientific Rigor (Aos, Phipps, Barnoski, & Lieb 2001; Gottfredson, MacKenzie, Reuter, & Bushway, 1997). Studies that received a rating lower than a three out of five (unmatched comparison group or no comparison group) were excluded. Where studies reported multiple measures of recidivism, researchers selected the broadest measure (e.g. arrest over conviction). Outcome data were collected on both sexual recidivism and general recidivism. Offenders who dropped out of treatment prior to completion were analyzed as part of the treatment group (even if the authors reported results for that sample separately). Studies were coded

in terms of treatment type: cognitive-behavioral, behavioral, psychotherapeutic, chemical, combined, and other.

Analysis

Data were coded into an Excel spreadsheet, which allowed researchers to calculate descriptive statistics for the full sample. The authors then recoded variables, to condense data into comparable units wherein each study contributed only one effect size to each outcome measure, and entered those into *Comprehensive Meta-Analysis* (CMA, version 2). Using CMA, the authors assessed heterogeneity using the *Q* and I-squared statistics (see Results section). The *Q* statistic is a test of the null hypothesis: a significant value ($p>.05$) indicates that the variation between studies was greater than one would expect if the difference could be explained entirely by random error (Borenstein, Hedges, Higgins, & Rothstein, 2009). Because the *Q* statistic is not a precise measure of the magnitude of dispersion between studies, the authors conducted additional analyses to quantify the proportion of variance that could be attributed to differences in study characteristics (such as setting, population, and intervention). The I-squared statistic (values range from 0% to 100%) provides an estimate of how much of the variation between studies can be explained by random error: values near 0 indicate that all of the difference can be explained by random error. Values at 25%, 50% and 75% are, respectively, considered low, moderate, and large heterogeneity (Piquero & Weisburd, 2012; Sedgwick, 2012). Given the range of study characteristics present in this sample, a random effects model, which assumes variability between studies (Piquero & Weisburd, 2010), was used to generate a summary effect size for each outcome measure. All data was coded and transformed into odds ratios, with values above 1 indicating a negative treatment effect and values below 1 indicating a positive treatment effect (i.e. reduced recidivism rates for offenders who participated in treatment).

Results

Sample characteristics

The majority of studies (k=5) were conducted in the United States (see Table 1). All of the studies evaluated interventions that were primarily cognitive-behavioral (three were evaluations of MST, which combines CBT interventions and a social-ecological framework). All of the studies evaluated community-based treatment programs (in one study, a small sub-sample of participants were treated in secure facilities and the rest were treated in community-based settings). No studies of secure juvenile sex offender treatment met minimum inclusion criteria for the analysis. The follow-up period ranged from 12 months to 20 years. All of the studies used a measure of general recidivism that included sex offenses; five of the studies also included a specific measure of sexual recidivism. Total sample size ranged from 16 to 155 and the entire sample describes 253 offenders in treatment groups and 280 offenders in comparison groups (see Appendix B).

Table 1 Characteristics of studies included in meta-analysis (k=6)

Characteristics	Frequency	%
Publication type		
Peer-reviewed journal	6	100
Unpublished technical report	--	--
Book	--	--
Sample location		
U.S.	5	83
Canada	1	17
Other	--	--
Methodological Quality		
5: Random Control Trial (RCT)	3	50
4: High quality quasi-experimental[1]	--	--
3: Quasi-experimental with testing or matching	3	50
Dropouts enumerated	6	100

[1]Employs a quasi-experimental research design with a program and matched comparison group, controlling with instrumental variables or Heckman approach to modeling self-selection; May also include RCT with problems in implementation

Meta-analysis

Sexual recidivism. Sexual recidivism was examined in five (5) studies (one (1) study only reported a composite measure of recidivism, that included but was not limited to sexual recidivism; those results are included in the discussion of general recidivism). In all of those, results favored treatment (two (2) were significant at $p<0.05$). The odds-ratios for sexual recidivism ranged from 0.05 to 0.80 (see Appendix B). The random effects mean odds-ratio was 0.28 (95% CI of 0.09 to 0.89, $p<0.05$), indicating that the treatment groups had significantly lower rates of sexual recidivism than the comparison groups. The Q test showed that the distribution of the effect sizes was not heterogeneous (Q=7.05, df=4, p=0.13, I^2=43.29); given the small sample size, however, this number may not be an accurate indicator of study-level differences.

Sexual recidivism by age. When compared to adult offenders treated in a community-based program, juvenile offenders show larger treatment effects on the outcome of sexual recidivism (mean odds-ratio of 0.47 and 0.28 respectively). The between-groups Q test, however, was not significant (Q=2.13, df=1, p=0.144), which indicates that there is no statistically significant difference between treatment effects based on offender age. These results confirm previous research (Hanson et al., 2009; Schmucker & Losel, 2008) and suggest that more research is needed to determine those study, participant, and treatment characteristics that have the biggest impact on program effectiveness.

General recidivism. General recidivism (including sex offenses) was examined in all of the studies (see Appendix C). Of those, results favored treatment in five (5) of the studies (three (3) were significant at $p< 0.05$). The odds-ratios for general recidivism ranged from 0.16 to 1.44. The random effects mean odds-ratio was 0.48 (95% CI of 0.28 to

0.85, p<0.05), indicating that treated offenders had significantly lower rates of sexual recidivism than the untreated offenders. The *Q* test was not significant (p=0.05), which is expected given the small sample size. The I-squared (I^2=55.94), which is not dependent on sample size, confirms that a moderate amount of the variance in effect sizes can be attributed to study-level differences.

General recidivism by age. When compared to adult offenders treated in a community-based program, juvenile offenders show larger treatment effects on the outcome of general recidivism (mean odds-ratio of 0.63 and 0.48 respectively) and the effect size for adults in community-based treatment only approached significance (p=0.05). The between-groups Q test, however, was not significant (*Q*=2.13, *df*=1, p=0.144), which indicates that there is no statistically significant difference between treatment effects based on offender age. These results contradict Hanson's analysis (2009), which found a statistically significant difference in the impact of treatment on general recidivism when comparing adults to juveniles.

Limitations

The strength of a meta-analysis rests on the comprehensiveness of the search strategy. While the authors sought to identify all eligible studies, the possibility exists, and is in fact likely, that those efforts failed to identify all the extant research on juvenile sex offender treatment. In some cases, the researchers were unable to obtain studies that were identified as eligible evaluations. Further, the strength of a meta-analysis is dependent on the quality and quantity of the available primary research. Overall, this sample contained a high proportion of randomized control trials; however, half of the included studies had a sample size of less than 100 participants and the total sample represented here is less than 1,000 adolescent offenders. Finally, the studies included here reflect diversity in terms of offenders, settings, dosage, study quality, and outcome measures. In many cases, the study authors did not provide sufficient information to allow for moderator analyses of relationship between those characteristics and treatment effect. Further, the relatively small sample of included studies made it difficult to conduct moderator analyses where sufficient information was available.

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Included Studies

Note: The studies marked with an asterisk (*) were included in the analyses. Studies without an asterisk are eligible but statistically dependent.

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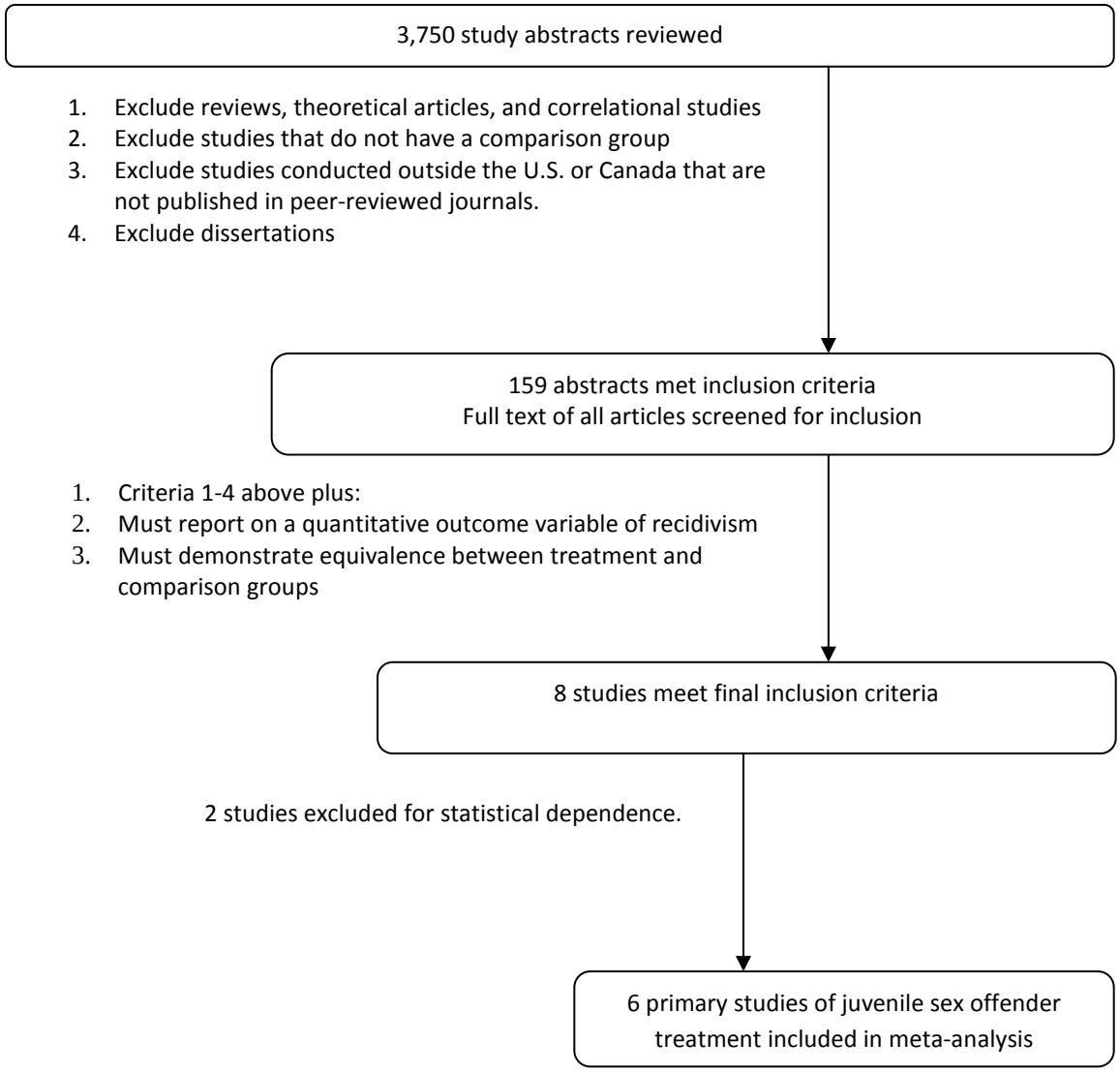
APPENDIX A: Search Results

Search: Title and Abstract
Search Limiters: Date Range
(1987-2011), English



APPENDIX B: Table of Included Studies

Author	Date	N in Each Group		Study Design	Sexual Recidivism		General Recidivism[1]	
		Treatment	Control		Odds-Ratio	95% CI	Odds-Ratio	95% CI
Borduin et al.	1990	8	8	RCT	0.05	0.003, 0.67	0.16	0.03, 0.81
Borduin et al.	2009	24	24	RCT	0.11	0.02, 0.56	0.21	0.08, 0.55
Guarino-Ghezzi	1998	33	25	Convenience	0.24	0.01, 6.24	0.47	0.16, 1.39
Lab et al.	1993	46	109	Convenience	0.53	0.50, 0.90	1.44	0.62, 3.31
Letourneau et al	2009	67	60	RCT	--		0.58	0.28, 1.20
Worling et al.	2000	75	54	Convenience	0.80	0.30, 2.10	0.48	0.25, 0.92
Total Sample = 533								

[1]General recidivism includes sexual recidivism